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ABSTRACT

Designed for elementary and secondary use in the social studies, this guide provides activities for learning the basic elements and the history of architecture. Through this study, students develop critical observation skills and investigate buildings as manifestations of religious, social, and personal values. The historical overview traces the progress of architecture from ancient times through the Renaissance, examines Western and non Western contributions, and concludes with a study of architecture in the United States. Class activities help students understand elements such as form and shape, texture, functions, structure, and context, and environment. For example, when studying structure students construct various models of structural support and investigate their strengths and weaknesses. Ten general learning activities for social studies students include presenting the history and structure of a community building, collecting photographs of modern structures which resemble tepee and pueblo styles, researching the style of Frank Lloyd Wright, and designing a living space for a family of four within 625 square feet. A list of resources and a guide for architecturally "reading" a building are included. (KC)

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Series 2
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Architecture as a Primary Source for Social Studies

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Why Study Architecture?

Architecture can be understood at some level by virtually every student. Buildings are tangible, unambiguous manifestations of community values. They tell us about the technologies, social structure, religions, political ideologies, life-styles, and self-perceptions of a society.

Architectural studies help develop critical observation skills useful in the inquiry process. Expressing a preference, a feeling, or even a negative reaction is useful in developing the student's ability to discriminate.

In addition, getting students interested in architecture is intrinsically worthwhile, for architecture can be a fulfilling hobby and an incentive to travel and reading.

Finally, the study of architecture can stimulate students to consider choosing a variety of careers—architect, urban planner, interior designer, builder, and others—in one of the most creative fields of human activity.

Basic Elements

The basic elements of architecture are:

1. Form and Shape
2. Scale and Proportion
3. Rhythm
4. Texture
5. Material
6. Structure
7. Space
8. Function
9. Context and Environment
10. Geography and Culture

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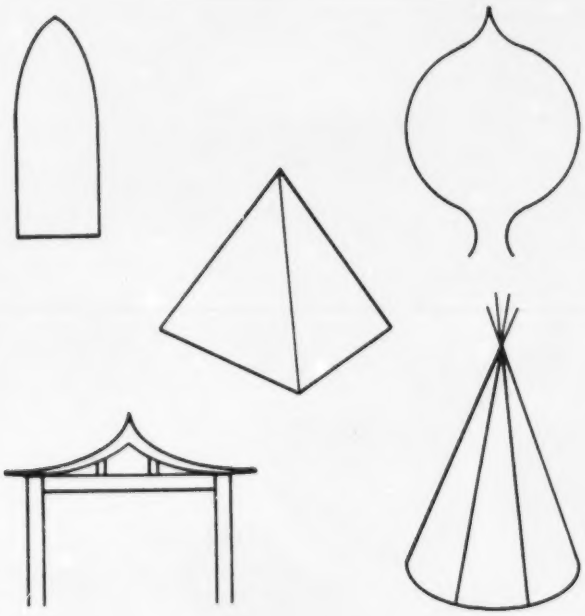
Form and Shape. These refer to the design, outline, contour, and pattern of a building. Form is characterized as *hard* or *soft*. An egg has *soft* form, due to its curved lines; a brick has *hard* form, due to its straight lines and right angles. The degree of hardness or softness influences the feelings that a building evokes. Form and shape are also cultural manifestations. For example, the cruciform plan and vertical sweep of a Gothic cathedral express medieval spiritual values by focusing on Christian symbolism.

Activities

1. The purpose of this activity is to make tangible the concepts of hard and soft form. Have the students bring to class two objects, one representing hard form, the other representing soft form. Ask them to classify each other's objects as either hard or soft. Note, for example, that a perfectly square block of foam rubber, although soft to the touch, possesses hard form, while a glass marble, hard to the touch, has soft form.
2. Draw the following shapes on the board and have the students match each with a specific culture. Ask them to suggest additional shapes.

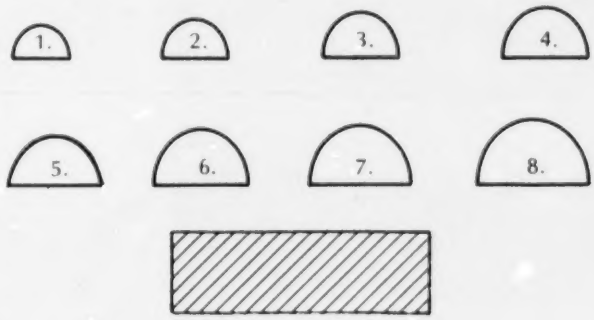


Scale and Proportion. These refer to the actual size and measurements of a building, and the balance that exists among the various parts. For example, the height and power of the buildings in New York's Rockefeller Center contrast greatly with the more human scale of a streetscape on Nantucket Island. A classic example of proportion occurs in the Parthenon, where a precise ratio (.618 to .382) exists between the distance from the apex of the pediment to the bottom of the base and the width of the base.

The whole question of proportion has intrigued artists and architects for centuries. Throughout history such thinkers as Leonardo da Vinci have experimented with such relationships as the "Golden Section" (dividing a line into two segments so that the smaller has the same ratio to the larger that the larger has to the whole). In the twentieth century, the Swiss architect Le Corbusier developed a complex proportional system, "Le Modular," based on the relationships among the parts of the human body. What constitutes proper proportion is ultimately a matter of opinion, but the topic continues to fascinate.

Activities

1. This activity will help the students to manipulate scales and proportions visually. Ask them to match one of the domes with the rectangle.



Then poll the class to determine which matching was the most popular.

2. Have the students look around their classroom, school building, and homes. Ask them to identify, draw, or photograph five "Golden Section" relationships. Any good encyclopedia will have a description of the "Golden Section." Also, the ten-minute film entitled *Golden Section* (Pyramid Films) presents a visually stimulating explanation of this concept.

Rhythm. This refers to the occurrence in a building of any architectural feature at regular intervals. One example is the repetition of Doric columns on all sides of the Parthenon.

Activity For the purpose of identifying rhythmic experiences, have students demonstrate various examples of rhythm: music, pulse rates, natural cycles, etc. Let them walk around the school building and identify specific rhythmic elements.

Texture. This refers to the configuration and feel of an object's surface. Brick has a rough surface; polished granite is smooth. Touch is the most direct way to learn texture. Vision, by evoking memory of feelings, provides secondary texture experiences.

Activity

In this activity, students will literally "get in touch with texture." Ask the students to walk around the classroom and touch every surface they can reach. Next, have each student list on a sheet of paper her or his three favorite and three least favorite surfaces; then each can share her or his choices with the class. Meanwhile the teacher can note on the blackboard the variety of choices and the frequency of each choice.

Material. This refers to substances with which a building is constructed, such as stone, mud, bark, steel, wood, and concrete. Availability, level of technology, and cost determine the choice of material, which in turn influences structure, form, color, and texture. Technical advances, such as structural steel and reinforced concrete, enable architects to design unlimited varieties of form and shape.

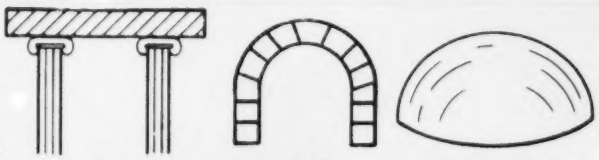
Activities

1. The purpose of this activity is to test the strengths and limitations of various building materials. Have stu-

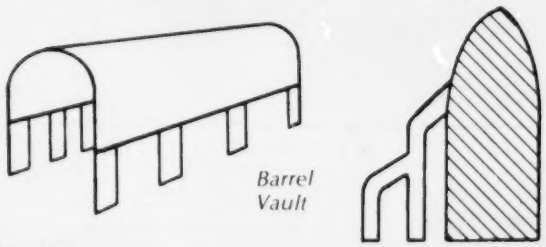
dents design four small buildings, each with a floor area of approximately 25 square inches. Each building should be constructed with one of the following materials: (a) clay, (b) sugar cubes and white glue, (c) toothpicks or balsa strips with paper covering, (d) Popsicle sticks, or (e) 5" x ½" cardboard strips. As a follow-up activity, discuss these questions: Which materials were easier and less time-consuming to work with? Which have greater rigidity? Which provide greater design flexibility?

2. You and the students take a walking tour of your community, identifying and documenting the materials encountered in buildings, fences, bridges, etc.

Structure. This refers to the systematic organization of the materals which constitute a building, bridge, dam, etc. This is the most technical aspect of architecture, and it has evolved into the specialty called "structural engineering." Important structural concepts include: (1) the geodesic bent-sapling structures of various forest cultures; (2) the post-and-lintel, arch, dome, and barrel vaulting of classical cultures; (3) the flying buttresses of the Gothic period; (4) wood (post and beam and balloon frame); and (5) the steel skeleton and reinforced concrete of the modern period.



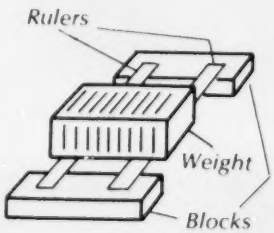
Post and Lintel *Arch* *Dome*

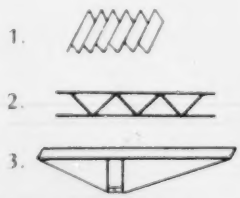


Flying Buttress

Activities

1. Students can demonstrate the limitations of post-and-lintel structure by spanning the space between two blocks with two rulers, resting a weight on the span, and then moving the blocks apart. Note the point at which the rulers begin to bend downward. (This is the concept of *deflection*—the bending of a structural member under pressure.)





2. Perform the same experiment using other lintels: metal, plastic, or folded paper (Figure 1), triangular trusses made from wood and glue (Figure 2), or thread and wooden member (Figure 3).[1]

[1]Forrest Wilson, *Architecture: A Book of Projects for Young Adults* (New York: Van Nostrand, Reinhold, 1968), page 69.

Space. This refers to the area or volume enclosed within a building or public area. The dimensions of a space influence the quality and efficiency of human behavior within it. Five kinds of space are: (1) An *intimate* space, such as a living room; (2) a *tight* or *oppressive* space, such as a small elevator; (3) a *public* space, such as a plaza or a sports stadium; (4) a *formal* space, such as the rotunda of a state capital; (5) a *personal* space, such as the interior of a sports car.

Activities

1. Have the students identify spaces that are: tight, warm, spiritual, exciting, awesome, severe, uncomfortable, cozy, frightening, important, efficient, useless, formal, and temporary. Invite students to share their ideas and to think up other kinds of spaces that they know about.

2. This activity will provide an opportunity to identify and manipulate known spaces consciously. Have students draw two floor plans: their home as it now exists, and their home with one-third less floor space. Which spaces would they eliminate? Which would they retain? Which would they change?

Function. This refers to the uses made of any interior or exterior space. Functional design is simple and direct. Most structures in the world are functional, although religious and institutional structures will often include nonfunctional exterior forms and decorations. Modern architects refer to the functional aspects of a building as its *program*. The program of a building dictates how its rooms, corridors, elevators, climate control devices, and power and plumbing facilities will be arranged (within the limits of the construction budget).

Activities

1. This activity will help students to visualize interior utility patterns. Have students draw a plan for every floor of their homes, or other spaces of their choice (school cafeteria, library, store, etc.). Color the areas according to the frequency of use. *Red*: heavily used. *Blue*: moderately used. *Green*: seldom used. Ask the students to analyze their plan and try to determine whether any spaces are wasted or are inadequate for their function. If necessary, let the students redesign the space.

2. This activity will give students the opportunity to design a space with a specific function in mind. Have students draw a floor plan, including furniture locations, for any of the following: hobby shop, bicycle shop, library, barber shop, music and record store, auto repair garage, or an ideal home. Encourage the students to consult a contractor or an architect to determine the per-square-foot cost of their project.

Context and Environment. This refers to the natural and ecological surroundings within which a building exists. This includes the building's relationship with surrounding structures, with the landscape, and with the topography. When an eighty-story steel and glass skyscraper adjoins a low-rise Victorian neighborhood whose dominant material is red brick, the effect can be both visually and psychologically offensive.

Another dimension of environmental design is energy conservation. This goal typically dictates maximized southern exposures, highly insulating building materials, air circulation systems, and such alternative energy sources as solar panels and windmills.

Activities

1. Take a walking tour of your community with your students. Let them sketch, photograph, or write about structures which do not "fit" their environments for

either aesthetic or functional reasons. An example might be a gas station which is situated between a public library and a church. Have students focus on details such as overhead wires, protruding signs, disharmony among exterior building materials, noise pollution, and dangerous traffic patterns.

2. Encourage students to do research papers on energy conservation methods already developed or under study. Invite an architect, a building contractor, an environmental scientist, or a real-estate agent to visit the class and discuss the relationship between building design and energy conservation.

Geography and Culture. This refers to ways in which climate, political and economic systems, availability of materials, and social mores influence the design, quantity, and size of structures. For example, the Greek *agora* (marketplace) in ancient Athens was constructed of locally available marble. Athens existed in a warm climate that was conducive to outdoor fraternizing, and in a social and political context that encouraged political debate and cultural events. Thus, vast public spaces were favored over domestic architecture. By contrast, Dallas, Texas, consists of a remarkably small business and cultural district surrounded by a vast sprawl of single-family housing developments. The city reflects eminently non-Athenian economic, technological, and cultural realities.

Activities

1. This activity will help students to understand how the arrangement of individuals within a community affects the way they feel about each other and themselves. Have the class form a large circle, standing shoulder to shoulder and facing the center. The teacher should stand in the center of the circle and ask the following questions: How do you feel now? How is this different from your normal arrangement? Do you have eye-contact with more individuals than usual?

Now, have the students face outward from the middle. Ask the following questions: Do you feel differently now? Would you like to be always isolated from your classmates this way? Would you like to live in a community that feels this way?

After the students have returned to their desks, ask the following question: What physical spaces and housing arrangements in your city, town, or neighborhood cause people to come together or to become isolated from each other?

2. Have each student choose a specific region of the United States and prepare a short presentation on its characteristic architectural techniques. Ask the students to note also whether there has been any loss of regional characteristics.

A Historical Overview

For modern students to understand modern buildings, it is useful to show them the progress of architecture from ancient times through the Renaissance, and the contributions of architects from what are traditionally called "the Western heritage" and the "non-Western heritage." The development of architecture in the United States can conclude this section.

The Western Heritage

Egypt. The significant accomplishments of the ancient Egyptians were the geometry and engineering of the Great Pyramids, the post-and-lintel structure, and the decorative beauty of the low-relief carvings on their temples.

Greece. The ancient Greeks were devoted to a beauty achieved through elaborate manipulation of ratio and proportion. As the architectural historian Peter Kidson puts it, "The Greeks regarded beauty as an attribute of the Gods and the conscious pursuit of beauty as a religious exercise."[2] In addition to establishing standards for architectural form, the Greeks codified three orders of design: the Doric, the Ionic, and the Corinthian.

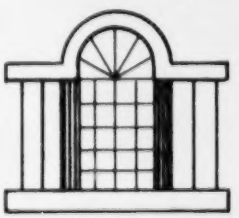
The Greeks made major contributions to the development of city planning and civic design. By concentrating civic buildings around a central market place (*agora*), the Greeks made design reflect economic and political reality, not just religious and symbolic thought. The Acropolis in Athens is the quintessence of a formal public space. The Greeks were also the first to establish a grid pattern as a principle of urban design.

Rome. Roman architecture continued the Greek tradition, adding such structural innovations as the dome, the arch, and vaulting. The discovery and widespread use of concrete enabled the Romans to build on a much grander scale than did the Greeks, with a great emphasis on large interior spaces.

In the Forum Romana, the Romans brought magnificent scale to the concept of a city center. They designed and constructed villas and tenements which were forerunners of the modern city. The virtues of the arch were superbly manifested in the Roman aqueduct.

Middle Ages. The Gothic cathedrals erected in Europe between the 12th and the 15th centuries stand as one of the greatest artistic and engineering triumphs of Western civilization. Their formal motif is the vertically-oriented pointed arch. Their structural innovations— rib-vaulting and flying buttresses—made possible towering interior vertical spaces and numerous windows. In addition to its structural boldness and self-confidence, the Gothic cathedral is rich in carved figures and exquisite leaded windows. The cathedral served the medieval Christian as the principal medium of non-verbal expression and spiritual imagery.

Renaissance. Italian and French Renaissance architecture produced a dynamic synthesis of Greek, Roman, and Near Eastern design concepts, translated by such men as Andrea Palladio and Christopher Wren. This tradition formed the basis of Colonial American architecture produced by such individuals as Peter Harrison, Thomas Jefferson, and Charles Bulfinch.



Palladian Window

Non-Western

Oriental. Pillar-and-beam was the favored building method, and wood was the favored material of traditional Chinese and Japanese societies. All the weight of the building was distributed through the beams and pillars, allowing the walls to be made of light materials or moveable screens. The resulting flexibility in interior space eventually became a major innovation in twentiety-century Western architecture.

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[2]John Julius Norwich, general editor, *Great Architecture in the World* (New York: American Heritage, 1975), page 56.

Islamic. The onion domes and tall, slender minarets of the Taj Mahal in India exemplify the vast influence that Islamic architecture exerted throughout the world—from the Middle East to the Far East, and even to Europe. Geometric mosaic patterns and pointed arches from the Islamic tradition occur in the Italian Renaissance churches of Florence and Venice.

Pre-Hispanic America. While great architectural traditions were being created in the Far East, the Middle East, and Europe, impressive cities and temples were constructed by the Mayas, Toltecs, Aztecs, and Incas in Mexico, Central America, and South America. These structures were major achievements of human creativity.

American History

Native American Architecture. Native American architecture involved technological concepts which are now being rediscovered. The cable-roof, used by the architect Eero Saarinen for the Yale University hockey rink, owes much to the Plains Indian tepee. Based on a skeletal exterior frame covered with protective material, the Wampanoag bent-sapling wigwam is a precursor to Buckminster Fuller's Geodesic Dome. The following are three basic Native American styles: (1) *The wigwam*—a circular or oval-shaped dwelling using bent saplings for structure and bark or grass mats for cover. (2) *The tepee*—a cone-shaped dwelling using long poles for structure and skins or bark for cover. (3) *The pueblo*—a permanent community dwelling made of thick adobe walls, with small windows. The thick walls protect the interior from the hot midday sun.

Colonial American Architecture. Nostalgia for Europe was the fundamental impulse behind colonial architecture. The northern colonies had little interest in assimilating Native American techniques. Many of the first settlers were carpenters who carried their traditions with them. English architecture was clearly the dominant source of inspiration. There existed definite, but isolated, instances of German, Dutch, and French influence. In the southwest, however, there was widespread and dynamic assimilation of Spanish and Native American forms.

The architectural style which eventually dominated the northern colonies, as well as such southern towns and cities as Charlestown, South Carolina, was the so-called "Georgian" style. Georgian architecture is characterized by order, symmetry, ornamental restraint, balance, and reliance on classical principles and functional integrity.

In the southwest, the Spanish influence resulted in a remarkable fusion of European and Native ideas. The design concepts came from the Spaniards, the technology from the Native population.

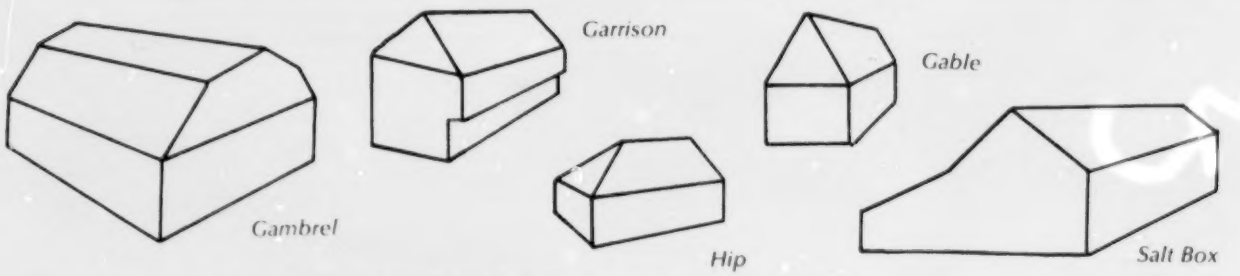
The colonial New England village provides a fascinating departure point for any discussion of community planning. Lewis Mumford, in the first chapter of *Sticks and Stones*, states that:

> . . .all the inhabitants of an early New England village were co-partners in a corporation; they admitted into the community only as many members as they could assimilate. This co-partnership was based upon a common sense as to the purpose of the community, and upon a roughly equal division of the land into individual plots taken in free-hold, and a share of the common fields, of which there might be half a dozen or more.[1]

This utopian community of yeoman farmers sharing a common vision is not the fantasy of romantic historians. It was once a firm reality.

The Romantic Revolt. The Romantic Movement in American architecture was preceded by a Greek Revival. The two movements interfaced for roughly forty years, between 1820 and 1860. During this period the architecture of the Greek Revival became rigid, formal, and unyielding in its interpretation of classical Greek ideas. The asymmetry, picturesqueness, decorative freedom, dramatic colors, and diverse materials of the emerging Romanticism contrasted strikingly with the studied formality of the waning Neo-Classicism.

The lack of self-confidence and the search for identity of the American social elite caused it to look toward Europe for a style with which to demonstrate its ascendancy. Gothic Revival was the rage in Europe, and the American aristocracy adopted it. Thus, the traditional cultural dependency on Europe was perpetuated. The literature of the Transcendentalists and the paintings of the Hudson River School further reinforced the Romantic movement. Among the more interesting results of this impulse were such vernacular styles as Gingerbread, Carpenter Gothic, the Stick Style, Eastlake, Queen Anne, and the Shingle Style.



Some Basic Colonial Roof and Home Styles and Design Motives

Technology, Industrialization, and the Modern Movement. Spawned by the Industrial Revolution of the nineteenth century, engineering and metallurgical breakthroughs contributed to such revolutionary building projects as the Crystal Palace in London (1851), the Brooklyn Bridge in New York City (1867-1883), and the Eiffel Tower in Paris (1885-1889). These innovations, together with the special needs of burgeoning industrial

[1]Lewis Mumford, *Sticks and Stones: A Study of American Architecture and Civilization* (New York: Dover Publications, Inc., 1955), page 3.

cities, set the stage for a truly indigenous style. American architecture finally freed itself from slavish dependence on the classical past and the European *Écoles des Beaux Arts*.

The Great Fire in Chicago of 1871 created the first real opportunity to use such technological and design innovations as the steel-skeleton skyscraper. The major figures of the "Chicago School" were Henry Hobson Richardson and Louis Sullivan. The Romantic emphasis on façade was now challenged by the idea that form should follow function.

Richardson's concept of interior "plan" and Sullivan's bold use of new materials and structural innovations foreshadowed the work of the great pioneer Frank Lloyd Wright. Wright broke totally with the eclectic tradition, creating a radical, genuinely American style which has profoundly influenced the entire modern movement of the twentieth century. In his revolutionary use of concrete, glass, cantilevers, and "organic" interiors, in his adaptation of Japanese open space planning, and in his notion of harmony between a building and its environment, Wright was far ahead of his time.

The Emergence of Urban America. While the creative genius of Louis Sullivan and Frank Lloyd Wright was temporarily stifled by the continued dominance of Beaux-Arts classicism, urban America was emerging, and with it there appeared a new set of community planning problems.

The emergence of industry and monopoly-capitalism shattered the New England village concept and created vast cities with crowded neighborhoods. People now lived in unhealthy, dehumanizing tenements and apartments. The "City Beautiful" movement, inspired by the Chicago Exposition of 1893 (public buildings as public art), along with the park plans of Frederick Law Olmsted, were well-intentioned but superficial solutions to the complex socioeconomics of a growing housing crisis.

The "Garden City" movement of the 1920s was far more comprehensive. For example, the Radburn, New Jersey experiment held great promise as a "Town for the Motor Age"; but it was eclipsed along with the "Garden City" movement by the Great Depression.

After World War II, America entered its greatest period of economic and technological expansion. Urban sprawl followed. As the white middle class fled to the suburbs, many residential city neighborhoods became deteriorating ghettoes, populated by low-income minorities and isolated from downtown commercial, cultural, and political centers. In the 1960s, the government embarked on "Urban Renewal." The result was commercial and government centers left cold and empty after five p.m. and suburban enclaves of middle-class luxury isolated from the life of the city.

The economic problems created by the energy crisis and population decline may trigger either a new migration into the cities or the building of "planned cities" in the pattern of Columbia, Maryland, and Reston, Virginia. If good planning precedes them, such developments could revitalize our cities. This potential, along with the growing national commitment to historic preservation, could spur, as the noted urban historian Jane Jacobs argues, a productive coexistence of the old and the new—a "sense of place" in American cities and neighborhoods.[4]

[4]Jane Jacobs, *The Death and Life of Great American Cities* (Westminister, MD: Random House, 1975), page 23.

General Learning Activities for Social Studies Students

The following is a group of activities for students which are generic to architecture as a whole and can be used in a variety of social studies settings.

I. Choose a building in your community and prepare a class presentation designed to acquaint your classmates with its history and architectural characteristics. Your presentation should include: a short history of ownership, building techniques, source of materials, description of style, and photographs or drawings of the building at various points in its history. Oral history derived from the present owner, the neighbors, or the representatives of a local historical society will add interest to your presentation.

Before you start, look up the following terms in a dictionary: gable, eaves, cornice, entablature, architrave, pediment, frieze, pilaster, dormer, portico, cantilever, lintel, mullion, oriel window.

II. Using a dictionary or encyclopedia, define the following terms: post, beam, lintel, column (Doric, Ionic, Corinthian), pediment, portico, entablature, frieze, architrave, arch, dome, barrel vault, Gothic arch, flying buttress, flamboyant tracery. Supplement each of these definitions with simple drawings. Identify five buildings or structures in your community which use Classical or Gothic architectural forms in some way. Photograph or draw the relevant parts.

III. Collect, draw, or photograph pictures of modern buildings that resemble visually or structurally each of the following architectural styles: Wigwam, Tepee, Pueblo.

IV. Using a variety of old magazines (*House Beautiful*, *Better Homes and Gardens*, Sunday rotogravure sections, real estate promotional materials, etc.), make a collage of *modern* adaptations of colonial architectural styles.

V. Frank Lloyd Wright was one of the century's boldest innovators. Research and define such Wrightian concepts as flexible space planning, organic design, the cruciform plan, intersecting horizontal planes, the Usonian House, etc. Examine blueprints, building photographs, or actual homes constructed since World War II which incorporate Wrightian concepts (i.e., ranch and split-level houses). Identify and describe the manner in which these concepts have been incorporated.

VI. While still in the classroom, map these three environments from memory: (1) A room in your home, (2) Your neighborhood, (3) Your town or city. Then, using tape rules, geodesic survey maps, and town and city maps, compare reality with your original perceptions. How close are the two versions? Which features appear larger in your first map than in your second one? Which appear smaller? How do you explain these discrepancies? Are any discrepancies particularly common within the classroom? What factors influence perception?

VII. Draw a realistic map of your neighborhood, town or city. Color it with different shades, differentiat-

Use This Guide To Help You "Read" Your Building

	Examples
1. Function	home, library, school, church
2. Form and Shape	large, small, bulky, narrow, tall, squat, circular, horizontal
3. Structure	wood frame, stone walls, steel skeleton, concrete
4. Style	Salt Box, Garrison, Romanesque, International*
5. Exterior Material and Texture	brick, marble, glass, clapboard, shingles, rough, smooth
6. Roof Style and Material	shed, gable, hip, gambrel, shingles, slates, copper
7. Window Styles	double hung, sash, diamond-paned, Gothic, Palladian, picture window, round, narrow, tall
8. Decorative Details	Greek columns, rhythmic bas-relief panels, pilasters, scroll pediments, finials
9. Interior Room Plan and Space	large, small, open, narrow, diverse, limited, boring, exciting
10. Site Description	"The building is situated on a narrow plot sandwiched between two tall office buildings."
11. Ownership and Stylistic History	"In 1740, John Smith built a gable-roofed, two-story house with a central chimney. In 1820, Jonathan Smith added a Greek Revival Portico. In 1860, Zebediah Winthrop bought the house, added an Italianate tower, and installed bargeboards along the cornices of the gables. In 1959, Fred Thompson installed picture windows on the front first story."

* See *American Architecture Since 1780: A Guide to the Styles*, by Marcus Whiffen.

ing the private, public, institutional, industrial, open, and transportation spaces. Do you think that your community uses land efficiently? Should land-use be changed? How would you change it?

VIII. The Japanese, as an island nation with a proportionately high population, have had to adapt to severe space limitations. This need as well as the Japanese tradition of flexible space planning are foreign to most of us; Americans are used to generous interior spaces and permanently divided rooms. Given the absolute limitation of 625 square feet (25' x 25'), design a floor plan and furniture scheme which can accommodate the dining, entertainment, sleeping, and working needs of a family of four.

IX. Much of the surviving architecture of ancient civilizations is religious, memorial, or symbolic. If you were an archeologist in the year 2280 A.D. scouring America for clues to our civilization, what would the structures built in our time (underground missile defense bunkers, the St. Lawrence Seaway, rocket launch platforms at Cape Canaveral, etc.) tell you about our culture?

X. Conduct a formal class debate. Resolved: "That cities are contrary to basic American values."

Sources and Resources

Books

1. American Institute of Architects. *Built Environment: A Teacher Introduction to Environment Education.* Washington, DC: AIA, 1975.
2. Andrews, Wayne. *Architecture, Ambition and Americans: A Social History of American Architecture.* New York: The Free Press, 1964.
3. Burchard, John and Albert Bush Brown. *The Architecture of America: A Social and Cultural History.* Boston: Little Brown and Company, 1961.
4. Cole, Doris. *From Tipi to Skyscraper: History of Women in Architecture.* Boston: The I Press, 1973.
5. Erikson, Aase. *Learning About the Built Environment.* Arlington, VA: National Association of Elementary School Principals, 1977.
6. Fitch, James Marston. *American Building: The Historical Forces That Shaped It.* New York: Schocken Books, 1973.
7. Hall, Robert T. *The Hidden Dimension.* Garden City, NY: Anchor Books, 1969.
8. Jacobs, David. *Master Builders of the Middle Ages.* New York: American Heritage, 1969.
9. Mumford, Lewis. *Sticks and Stones: A Study of American Architecture and Civilization.* New York: Dover Publications, 1955.
10. Norwich, John Julius, general editor. *Great Architecture of the World.* New York: American Heritage, 1975.
11. Rasmussen, Stein Eiler. *Experiencing Architecture.* Cambridge, MA: MIT Press, 1959.

12. Smith, G.E. Kidder. *Architecture in America: A Pictorial History*. New York: American Heritage, 1976.
13. Sullivan, George. *Understanding Architecture*. New York: Frederick Warne and Company, 1971.
14. Wiffen, Marcus. *American Architecture Since 1780: A Guide to the Styles*. Cambridge, MA: MIT Press, 1969.
15. White, Norval. *The Architecture Book*. New York: Alfred A. Knopf, 1976.
16. Wilson, Forrest. *Architecture: A Book of Projects for Young Adults*. New York: Van Nostrand, Reinhold, 1968.

Sound Filmstrips

1. *Understanding World Architecture; Understanding Modern Architecture; The New American Architecture; The City in History; American Art and Architecture, 17th and 18th Centuries; American Art and Architecture, 19th Century; American Art and Architecture, 20th Century Trends*. Stamford, CT: Educational Dimensions Corporation.
2. *Beyond Architecture*. Tarrytown, NY: Prentice Hall Media.
3. *Towers and Palaces: The Search for an American Tradition in Architecture*. Chicago: Rand McNally and Company.

Films

1. The following is a list of films which are available on free loan from the American Institute of Architects, Department of Education and Research, 1735 New York Avenue, N.W., Washington, DC 20006.

No Time for Ugliness. Vividly explores the issue of ugliness vs. beauty in the urban environment.

The Best We Can Do. Takes a critical look at housing developments and suggests a model for creating visually stimulating and people-oriented communities.

The Noisy Landscape. Takes a dim view of the proliferation of chaotic signs and billboards and argues for rational use of graphics and sign ordinances.

The Right of Way. Illustrates the environmental havoc created by some highway systems and suggests a balanced design process through the integration of architects, engineers, social scientists, and civic leaders.

NOTE: This *How To Do It* Notebook Series 2, designed for a loose-leaf binder, provides a practical and useful source of classroom methods and techniques for elementary and secondary social studies teachers. The titles now available in Series 2 are: *Improving Reading Skills in Social Studies, Effective Use of Films in Social Studies Classrooms, Reach for a Picture*, and *Using Questions in Social Studies*. Price per copy, $1.00. Quantity discounts: 10–49 copies, 10%; 50–99 copies, 15%; 100 or more copies, 20%. Payment must accompany all orders except those on official institutional purchase order forms. Order from the NATIONAL COUNCIL FOR THE SOCIAL STUDIES, 2030 M Street, N.W., Suite 400, Washington, D.C. 20036.